

Recent developments in sugar palm (*Arenga pinnata*) based biocomposites and their potential industrial applications: a review

ABSTRACT

Rapid exhaustion of petroleum resources coupled with increasing awareness of global environmental problems related to the use of conventional plastics are the main driving forces for the widespread acceptance of natural fibers and biopolymers as green materials. Natural fibers and biopolymers have attracted considerable attention of scientist and industries due to their environmentally friendly and sustainable nature. Sugar palm is a multipurpose tree grown in tropical countries and it is regarded as a potential source for natural fibers and biopolymer. Sugar palm fibers (SPF) are mainly composed of cellulose (~66.49%) which leads to their outstanding mechanical properties. The starch extracted from sugar palm tree can be plasticized, blend with other polymers or reinforced with fibers to enhance their properties. From literature review, it is clear that no comprehensive review paper published on sugar palm fibers, starch, and its biocomposites. Present review focuses on recent works related to properties of sugar palm fibers and starch, and their fabrication as green composites. The review also unveils the potential of sugar palm fibers and biopolymer for industrial applications such as automotive, packaging, bioenergy and others.

Keyword: Sugar palm; Biopolymers; Biobased materials; Biocomposite